

New or Noteworthy Orchids from Central America and the Philippine Islands

BY
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IN further study of the flora of Central America and the Philippine Islands, the following orchids appear to deserve recognition as new species or to require nomenclatorial attention.

The descriptions have been prepared from herbarium specimens.

The genera follow the sequence proposed by Pfitzer in Engler and Prantl's "Die natürlichen Pflanzenfamilien."

Acoridium montanum *Ames nom. nov.*

Acoridium linearifolium *Ames* Orchidaceae 7 (1922) 141, non Rolfe.

At the time of the publication of fascicle seven of Orchidaceae the earlier use of *Acoridium linearifolium* by Rolfe was overlooked.

PHILIPPINES, Luzon, Benguet Province, Mount Boadan, *Ramos & Edaño* 56, September 26, 1921. On trees in mossy forest. 6800 feet altitude.

Acoridium rhombophorum (*Reichb. f.*) *Ames comb. nov.*

Coelogyne rhombophora *Reichb. f.* in *Linnaea* 41 (1877) 116. *Pholidota rhombophora* *Reichb. f.* in *Linnaea* 41 (1877) 117, sub *Coelogyne rhombophora*; *Pfitz. & Kränzl.* in *Engl. Pflanzenreich* IV. 50. II. B. 7 (1907) 153. *Acoridium* Whit-

fordii Rolfe ex Ames Orchidaceae 1 (1905) 73. *Dendrochilum Whitfordii* Pfitz. in Engl. Pflanzenreich IV. 50. II. B. 7 (1907) 162. *Dendrochilum rhombophorum* Ames Orchidaceae 3 (1908) 7.

The synonymy given above indicates the history of the Philippine species which Rolfe described as *Acoridium Whitfordii*. It was first obtained by Wallis from "Manila" and published as a new *Coelogyne* by Reichenbach. From Reichenbach's description it was quite impossible to identify the species. Pfitzer in his monograph of the *Coelogyninae* referred it to *Pholidota*, stating that he had not seen the type. In 1905, Rolfe identified a Philippine orchid collected in Luzon as a new species for which he proposed the name *Acoridium Whitfordii*.

In my herbarium there is a specimen from the original Wallis collection, for which I am indebted to the Director of the Botanische Abteilung des Naturhistorischen Museums, Vienna. I also possess a tracing from the type preserved in Reichenbach's Herbarium. The Wallis specimen proves to be similar to the specimens from Luzon from which Rolfe drew his description of *Acoridium Whitfordii*.

Our present knowledge of the species indicates that it is confined to Luzon.

PHILIPPINES, Luzon, Provinces of Bataan, Laguna and Tayabas.

Acoridium saccolabium (Kränzl.) Ames comb. nov.

Dendrochilum saccolabium Kränzl. in Annal. k.k. Hofmus. Wien 30 (1916) 56.

The deeply saccate labellum of this extraordinary species is unusual in the genus. It exhibits an extreme development of a tendency toward concavity of the labellum which is one of the traits of *Acoridium*, and in its inflorescence suggests such species as *Acoridium Wenzelii*.

My knowledge of this species is based on material cultivated in Hort. München-Nymphenburg, said to have come from the type plant. For this material I am indebted to Dr. Rudolf Schlechter.

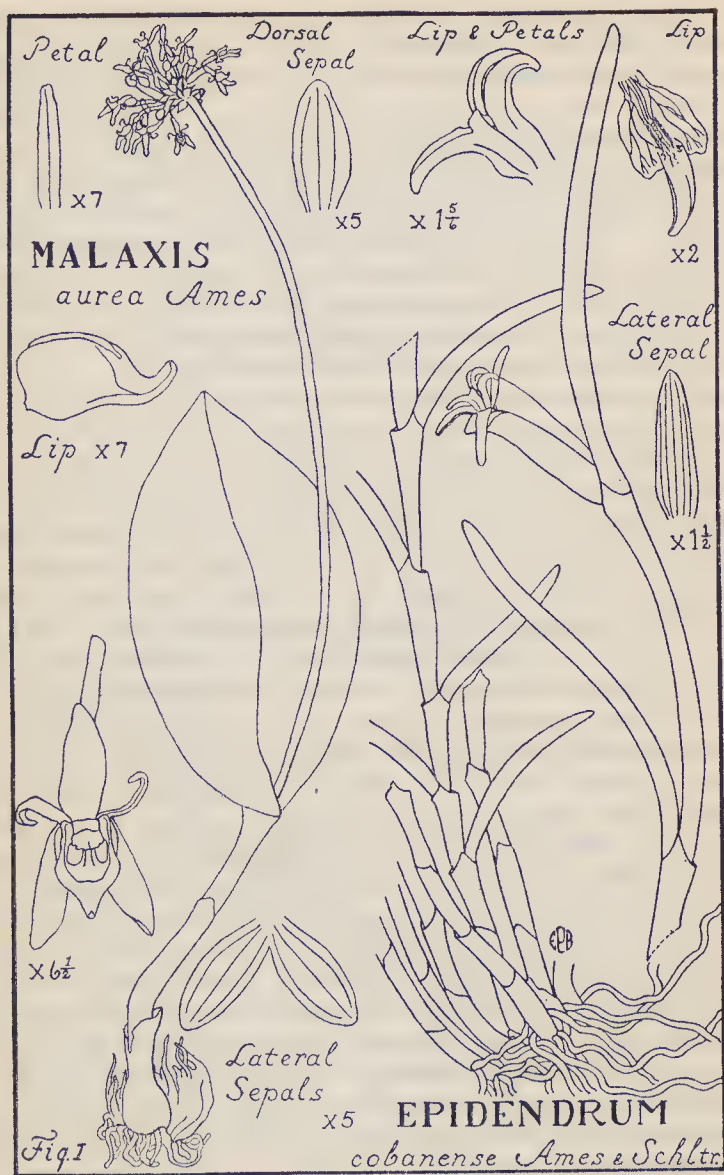
PHILIPPINES, without locality, *Loher*.

Malaxis aurea Ames *sp. nov.* Herba terrestris, monophylla, floribus subumbellatis. Caulis basi tumidus, vaginis amplis mox in fibras solutis vestitus. Folium ellipticum, subobtusum, basi amplexicaule, membranaceum, viride. Pedunculus elongatus, bialatus, infra racemum nudus. Flores congesti, subumbellati, in racemum valde abbreviatum dispositi. Pedicelli bractearum subtendentes multo excedentes, graciles. Sepala lateralia lineari-oblonga, margine valde revoluta, explanata oblongo-elliptica, uninervia. Sepalum dorsale simile. Petala linearia, subcircinnata. Labellum valde concavum, intus lincis incrassatis instructum, a latere complanatum, in rostrum hamatum terminans, apice a latere visum caput elephantinum subjiciens, explanatum orbiculari-cordatum, longe apiculatum. Columna generis.

Terrestrial herb found in pastures, 16 cm. tall in the single specimen which constitutes the type, monophyllous. Stem about 4 cm. long including the tumid rooting base. Leaf 5.8 cm. long, about 3 cm. wide, elliptical, rounded at the base where it clasps the peduncle, tapering rather abruptly from above the middle to the subacute tip. Petiole about 1.5 cm. long, ample, conduplicate. Peduncle including the subumbellate raceme 11.5 cm. long, naked, conspicuously bialate, scarcely 2 mm. thick in greatest diameter. Raceme 5 mm. long, many-flowered, subumbellate. Flowers apricot-yellow when alive. Floral bracts about 1 mm. long, green, much shorter than the slender pedicels, apparently deflexed. Pedicels up to 7 mm. long, obliquely ascending. Lateral sepals 2.5 mm. long, linear-oblong (oblong-elliptical obtuse when forcibly spread out), margins strongly revolute, 1-nerved. Dorsal sepal similar. Petals 2 mm. long, linear, obtuse, somewhat coiled. Labellum fleshy, about 2 mm. long, laterally compressed, strongly complanate-concave, margins more or less inflexed, apex thickened, apiculate-rostrate from beneath the tip, when spread out orbicular-cordate in front of the rostrate appendage, inside with three thickened ridges, the central one broader than the laterals. Column minute.

The floral structure suggests *Malaxis Tonduzii* (Schltr.) Ames, but the petals and sepals are different, and the solitary

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leaf is larger with a noncrispate margin. *Malaxis linguella* (Reichb. f.) Ames, a native of Mexico, but with a very different labellum, is similar vegetatively. [Fig. 1.]

COSTA RICA, Cóncevas, C. H. Lankester 346. Flowers apricot-yellow, leaf and rachis yellowish oil-green. (Colors according to Ridgway's standards. Pl. V.) (TYPE in Herb. Kew.)

Appendicula irigensis Ames sp. nov. Caules elongati, ramosi, foliosi, vaginis foliorum omnino obtecti. Folia disticha, elliptico-lanceolata, apice obtuse bilobulata mucrone rigido interjecto. Pedunculi terminales et laterales. Racemi folia subaequantes, bracteis flores subtendentibus elongatis linearibus. Sepala lateralia triangularia, acuta, mentum obtusum formantia, extus per medium carinata. Sepalum dorsale ovato-lanceolatum, concavum. Petala oblonga, margine obscure erosa, apice nonnihil inconspicue apiculata. Labellum supra medium in laminam suborbicularem minute erosam expansum, basi concavum, erectum. Callus in disco. Columna brevis, rostello oblique erecto, in apicem excisum producta.

Stems branching, 30 cm. or more long, leafy, the lower leaves soon deciduous. Leaves distichous, numerous, 3-5 cm. long, 5-9 mm. wide, elliptic-lanceolate, bilobed at the apex with a mucro between the lobes; at base each leaf is articulated with a tubular sheath, the sheaths persistent and concealing the stem. Peduncles terminal or lateral, with the raceme up to 3 cm. long, shorter than or equaling the leaves. Bracts of the raceme up to 5 mm. long, spreading, linear. Lateral sepals 3 mm. long, triangular, acute, forming a prominent obtuse mentum, carinate along the middle nerve on the outside. Menthum 2 mm. long. Dorsal sepal 4 mm. long, ovate-lanceolate from a broad base, concave. Petals 3 mm. long, about 1 mm. wide, oblong, obtuse, obscurely apiculate, margin minutely erose-dentate. Labellum suborbicular above, 3 mm. wide, about 4 mm. long, lower portion concave, quadrate. Disc with a lamelliform callus at the base of the orbicular lamina. Callus posteriorly rounded, in

front passing into strongly curved submarginal keels. Column to the tip of the excised rostellum 2 mm. long, produced at base into a conspicuous foot.

Allied to *Appendicula maquilangensis* Ames, from which it differs in the elongated linear floral bracts and in the erose-dentate margin of the labellum.

PHILIPPINES, Luzon, Rizal Province, Mount Iriga, *M. Ramos, Bureau of Science 41941C*, February 16, 1923. On trees in dense forest. 3000 feet altitude. (TYPE in Philip. Bur. Sci. DUPLICATE TYPE in Herb. Ames No. 25933.)

***Appendicula polyantha* Ames sp. nov.** Caules elongati, foliosi, in axillis foliorum paene usque ad basim florigeri. Folia disticha, inter se satis distantia, anguste lanceolata, in sicco chartacea, apice bilobulata apiculo interjecto. Vaginae foliorum caulem omnino obtegentes, persistentes, demum scariosae. Pedunculi cum racemo abbreviato paucifloro quam folia multo breviores, ex axillis foliorum orientes. Flores plus minusve quinque, albidii. Bractee inflorescentiae lineari-lanceolatae. Pedicelli multo abbreviati, subobsoleti. Ovarium minute verrucosum. Sepala lateralialia triangularia, acuta, mentum prominens formantia. Sepalum dorsale anguste ellipticum, valde concavum, obtusum, extus prope basim verruculosum. Petala elliptico-oblonga, obtusa, trinervia. Labellum supra medium in laminam orbicularem expansum, infra medium columnae pedis marginibus affixum, saccum obtusum formans. Discus prope basim laminae labelli pilis glandulosis ornatus. Saccus e sepalis lateralibus non protrudens, intus in pariete antico valde carinatus. Columna brevis, in pedem conspicue producta. Rostellum breviter excisum.

Stems up to 60 cm. or more long, about 5 mm. thick near the base, terete, concealed by the sheathing bases of the distichous leaves. Leaves twenty-five or more, up to 8.5 cm. long, 1-1.5 cm. wide, narrowly lanceolate, tapering gradually to the minutely bilobed tip, with a slender apicule between the lobes, articulated at base to persistent sheaths. Peduncles with the raceme up to 1.5 cm. long, rather stout, much shorter than the leaves, produced from the axils of

the leaves for nearly the entire length of the leafy portion of the stem. Racemes about 5-flowered. Bracts of the raceme about 5 mm. long, linear-lanceolate, acute, spreading. Pedicels very short, almost obsolete, with the verruculose unfertilized ovary 3 mm. long, the fertilized ovary at maturity 8 mm. long. Lateral sepals 3 mm. long, triangular, acute, forming a blunt mentum which is 3.5 mm. long. Mentum 2.5 mm. in greatest diameter, laterally flattened or compressed. Dorsal sepal 3 mm. long, narrowly elliptical, strongly concave, obtuse, near the base on the outer surface somewhat verruculose. Petals 3 mm. long, 1.5 mm. wide, elliptic-oblong, obtuse, 3-nerved. Labellum with the lower half adnate to the wide foot of the column forming a blunt sac which is wholly concealed by the sepalous mentum, upper half expanded into a suborbicular or orbicular obtuse fleshy lamina which is 2 mm. long; the sac itself is almost 3 mm. long with a heavily thickened keel on the inner side of the anterior wall. Disc near the opening to the sac provided with long, weak, glandular hairs. Column from the base of the upper sepal to the tip of the deep excised rostellum 2 mm. long, prolonged at base into a conspicuous elongated foot.

In habit not unlike *Appendicula Fenixii* Ames, but very different from it in the structure of the labellum.

PHILIPPINES, Luzon, Rizal Province, Mount Angilog, G. Lopez, Bureau of Science 42058, February 15, 1923. Flower white. 2200 meters altitude. (TYPE in Herb. Philip. Bur. Sei. DUPLICATE TYPE in Herb. Ames No. 25911.)

Masdevallia linearifolia Ames sp. nov. Herba epiphytica, pusilla. Radices fibratae, albae. Caules secundarii abbreviati, vaginati, caespitosi. Folia coriacea, linearia, apice bilobulata apiculo interjecto, usque ad basim angustata. Pedunculi abbreviati, cum floribus inter caules secundarios occulti. Flores parvuli, purpurei. Sepala lateralia vix ad medium cohaerentia, ovata, longe caudata, trinervia. Sepalum dorsale simile. Petala irregulariter et inaequaliter dolabriformia, obtusa, uninervia. Labellum unguiculatum, basi sagittatum, antice orbiculare, margine

denticulato vel breviter fimbriato, utrinque prope unguem callosum. Columna gracilis, utrinque triangulari-alata, alis dependentibus acuminatis acutis; clinandrio post antheram longe producto.

A small epiphytic herb up to 4 cm. high, with the flowers more or less concealed among the secondary stems and leaves in the manner of *Masdevallia simula* Reichb. f. Secondary stems 6 mm. long, caespitose, monophyllous, vaginate. Sheaths equaling or exceeding the secondary stems, scarious. Leaf up to 3 cm. long, about 2 mm. wide, bilobulate at the tip with a short apicule between the lobules, narrowed toward the base, linear, coriaceous. Peduncle with the pedicellate ovary about 1 cm. long, slender, 1-flowered. Lateral sepals united almost to the middle, ovate, 5 mm. long to the tip, free portion up to 2 mm. wide, 3-nerved, caudate, the tail 2 mm. long being the prolongation of a carinate median nerve. Dorsal sepal 7 mm. long including the caudate tip, 2 mm. wide, the caudate tip 3 mm. long, tricarinate, the median keel prominent. Petals 2 mm. long, variable, about 2 mm. wide below the tip, dolabriform, emarginate on the anterior margin, obtuse; below the middle on the upper half — on the inner surface — a papilliform callus is situated on or near the anterior margin. Labellum 2.5 mm. long, 1.5 mm. wide near the tip, unguiculate, sagittately 3-lobed; the lateral lobes or auricles retrorse, parallel with or appressed to the claw, with a prominent complanate callus at the base of each lobe; middle lobe subacute, round-obtuse in front, the lateral margins denticulate or fimbriate. Column 3 mm. long, produced at base into a short foot, on each side near the summit with a deflexed or pendent triangular-acuminate acute wing; clinandrium obscurely crenulate, produced behind the anther into a linear denticulate membrane.

Closely allied to *Masdevallia simula* Reichb. f., but clearly distinguished from that species by the strongly caudate sepals, and by differences in the structure of the labellum and column. From *M. guatemalensis* Schltr. it differs also in having caudate sepals.

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GUATEMALA, Department of Alta Verapaz, Cubilquitz, *H. v. Tuerckheim* 7784, August 1900. Flowers rose-brown. (TYPE in Herb. Ames No. 7341.)

Masdevallia Livingstoneana *Roezl & Reichb. f.* in Gard. Chron. ser. 2, 2 (1874) 322; Reichb. f. in Gard. Chron. ser. 2, 4 (1875) 290; Woodward & Lehm. Genus Masdev. (1896) 151, under Species now excluded from the Genus *Masdevallia* (Referred to *Pleurothallis*); Rolfe in Orch. Rev. 26 (1918) 119; Schltr. in Fedde Repert. Beihefte 17 (1922) 15; Ames Sched. Orch. 4 (1923) 9.

Scaphosepalum panamense *Schltr.* in Fedde Repert. 12 (1913) 205. *Masdevallia panamensis* *Ames* Sched. Orch. 4 (1923) 9.

The type of *Masdevallia Livingstoneana* was discovered by Benito Roezl in the autumn of 1873, presumably near Culebra on the Isthmus of Panama. Most of the plants which made up the type collection were nearly dead when they reached England, but a few which survived the ocean voyage were sold at auction in London for F. Sander.

Reichenbach published two descriptions. The first one appeared in the Gardeners' Chronicle of 1874. At Roezl's request the species was dedicated to Dr. Livingstone. The first description was sadly incomplete. In it no mention whatever was made of petals, labellum or column. It would seem that Reichenbach had to rely on a water-color sketch in the preparation of his diagnosis. At all events, a water-color sketch found a place in his herbarium and bears on its face what appears to be a rough draft of the original description.

In 1875, when Reichenbach published his second description, he began the English characterization with these significant words: "I have just the first two fresh flowers at hand." From this statement I assume that he had not seen, at an earlier date, dried flowers which were serviceable for analysis. It may well be that with the first flowers available for a complete diagnosis he hastened to clarify a species which he knew well had been imperfectly characterized.

Unfortunately there are perplexing speculations as to what constitutes the actual type of *Masdevallia Livingstoneana*, because there were two importations of the species from which Reichenbach might have obtained the material on which he relied for amplification of the original description. Mr. F. Sander informed R. A. Rolfe that after the sale of the first importation (the plants having been distributed simply as *Masdevallia* sp.), Roezl arrived at the old nursery in George Street, St. Albans, with living specimens and dried flowers. It was at this time that Roezl suggested the name *Masdevallia Livingstoneana*, in honor of Dr. Livingstone, whose body had just been brought home by Stanley. Reichenbach did not abolish ambiguity as to the material that constitutes the type when he attempted to make atonement for his ill-advised attempt to establish a new species with an incomplete description, for in his notes he failed to assure us that the flowers he examined came from specimens collected by Roezl in Panama. He simply reported that the fresh flowers came from Baden, where they had appeared in the orchid collection of the Prince Egon von Fürstenberg. In view of the evidence it would seem that the sketch on which Reichenbach wrote the first rough draft of the description which appeared in the 1874 issue of the *Gardeners' Chronicle* is the actual type of *Masdevallia Livingstoneana*.

Although living plants of the species reached England it promptly passed into the category of imperfectly known orchids. Miss Woolward, in her monograph of *Masdevallia*, referred it to *Pleurothallis*. Rolfe, in the *Orchid Review*, when he published a reply to enquiries regarding *Masdevallia Livingstoneana*, was unable to furnish a clue as to its identity or affinity, notwithstanding his exceptional opportunities for dissipating the mists which surrounded many of Reichenbach's secluded types.

Dr. Schlechter, in his recent studies of the orchids of Panama collected by C. W. Powell, arrived at the conclusion that a specimen collected near Arrijan, west of the Canal, represented the long-lost *Masdevallia*. I gave my reasons, in *Schedulae Orchidianae* 4, for taking exception to Dr.

Schlechter's conclusion. It seemed to me that Powell's specimens did not agree in the aspect of the flowers with the colored sketch in the Reichenbachian Herbarium. The posture of the sepals, their coloration and their relative length did not give the impression of being similar to the species which Reichenbach had attempted to describe from a drawing. Furthermore, in the light of Reichenbach's amplified description, the petals and labellum of Powell's specimens seemed to be quite different from those of *M. Livingstoneana*. Very recently I have been able to make exhaustive studies of the species through herbarium material and specimens preserved in alcohol. These studies have substantiated Dr. Schlechter's conclusion, and indicate that the water-color sketch of the type is simply a record of one of the extremes of variation to which *Masdevallia Livingstoneana* is subject.

The accompanying illustration has been prepared to exhibit the range of variation that characterizes the flowers of *Masdevallia Livingstoneana*. The sketches in the lower right-hand corner were drawn with the aid of the camera-lucida from material collected and preserved in alcohol by Mr. Powell. In the upper right-hand corner a portion of the colored sketch, which I have designated as the type, has been reproduced from a photograph, the salient details having been drawn with the camera-lucida. The analytical drawings of the petal, labellum and column were made from the flower marked *a*. The flower marked *b* represents Powell's No. 223, which is representative of the form which has been called *Masdevallia panamensis*. With the exception of the analytical drawings, all figures are natural size. The labellum petals and column remain fairly constant in outline and structure, notwithstanding the variations noticeable in the calyx. [Fig. 2.]

Stelis crescentiicola Schltr. in Fedde Repert. 16 (1920) 442.

Stelis flexuosa Kränzl. in Engl. Bot. Jahrb. 26 (1899) 450, non Lindl. *Stelis Isthmi* Schltr. In Fedde Repert. Beihefte 17 (1922) 17. *Stelis praemorsa* Schltr. in Fedde Repert. Beihefte 17 (1922) 17.



The type of this species was collected by F. C. Lehmann (No. 4540) along the Chagres River. It is well characterized by the apical part of the labellum having translucent cells, each cell with a bundle of calcium oxalate crystals in its centre. In recent studies of material from Panama I have examined specimens of Powell's 232 (type number of *S. Isthmi* Schltr.) and 234 (type number of *S. praemorsa* Schltr.), and also flowers preserved in alcohol of Powell's 284 sent to me without a name. I have been unable to discover structural differences which admit of specific differentiation between the plants designated by these numbers and *Stelis crescentiicola*. Slight differences in the structure of the labellum occur in flowers from the same plant that are fully as weighty, for specific differences, it seems to me, as those emphasized by Dr. Schlechter in his characterizations of *S. Isthmi*, *S. praemorsa* and *S. crescentiicola*. To utilize such differences for the recognition of distinct species seems hardly worth while. Powell in his field notes indicates that the flowers of *S. Isthmi* are purple, those of *S. praemorsa* yellow-green with the basal part purple, but these color distinctions do not appear to me to be correlated with structural differences, and simply indicate individual variation. Powell 285 is structurally similar to the other specimens examined, but lacks the purplish or pinkish tinge which is the normal color of the species. The flowers are described as being white.

The Lehmann specimens in the United States National Herbarium indicate that the plants were collected before the racemes had attained full development. This gives them a somewhat dissimilar aspect to the Powell plants. In the flowers examined I found that the labellum had shrivelled considerably in drying. As a result of this it exhibits differences from fresh material and from well-preserved herbarium specimens that might be regarded as of sufficient importance for the recognition of a distinct species. The structure of the labellum, however, is the same as in the Powell specimens.

Stelis crescentiicola Schltr., *S. barbata* Rolfe and *S. microchila* Schltr. are closely related species characterized in part by the labellum having a fleshy basal half and a blunt

somewhat spongy more or less dorso-ventrally flattened apical half. In *S. crescenticola* the apical half is variable in length and breadth, and sometimes, perhaps by injury or in dried specimens by desiccation, may become obsolescent, the tendency toward obsolescence being by no means uniform in the same plant. From the description of *Stelis praemorsa* it would seem that the flowers studied were in this latter category.

PANAMA.

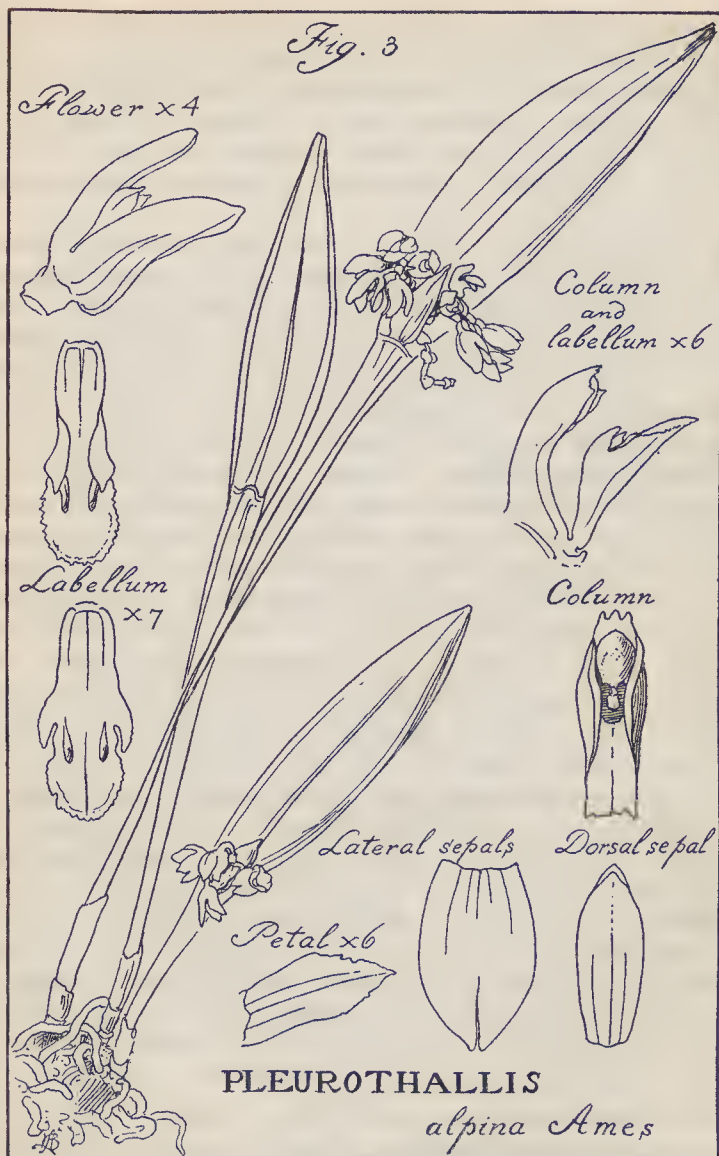
Stelis Williamsii Ames Orchidaceae 7 (April 1922) 133.

Stelis collina Schltr. in Fedde Repert. Beihefte 17 (December 1922) 15.

This species, which is in part distinguished by the glandulose upper margin of the petals and by purplish flowers, is represented in my herbarium by the type collected in Cana by R. S. Williams and by a duplicate of Powell's 180, on which Schlechter relied in drawing up his description of *Stelis collina*. Structurally *S. Williamsii* and *S. collina* are identical, although in Powell's 180 the sepals are slightly shorter than in the type of *S. Williamsii*.

PANAMA.

Pleurothallis alpina Ames sp. nov. Caules secundarii cespitosi, triangulares, longitudinaliter sulcati, erceti, basi vaginis brunneis chartaceis vestiti, monophylli. Folium valde coriaceum, elliptico-lanceolatum, apice bidenticulatum apiculo interjecto. Flores mediocres, in axilla folii congesti. Pedunculi tri- vel quadriflori, e bractea spathacea orientes. Bracteae flores subtendentes infundibuliformes. Sepala lateraliter demum libera, valde coriacea, margine minute glandulosa, oblongo-lanceolata, acuta, extus per medium earinata, carina minute scabridula, trinervia. Sepalum dorsale oblongum, supra medium usque ad apicem angustatum, incrassato-carnosum, extus per medium carinatum. Petala membranacea, oblonga, apice angustata, in acumen brevem producta, margine supra medium sparse et irregulariter denticulata, trinervia, sepalis multo breviora.



Labellum carnosum, spathulatum, obtusum, margine supra medium inaequaliter dentatum, infra medium labelli utrinque unidentatum vel unilobulatum; lobulis triangularibus, acutis, erectis, porreetis, apice lobulorum medium labelli excedentibus. Discus glaber, supra medium utrinque breviter bicarinatus, trinervius. Columna carnosae, apice paucidenticulata.

Secondary stems 4–20 cm. long, with elongated brownish sheaths at the base, triangular with a groove between each angle, monophyllous, somewhat dilated above. Leaf 8–10 cm. long, 1.5–2 cm. wide, narrowly elliptic-lanceolate, very coriaceous, bidenticulate at the tip with a short apicule between the teeth, narrowed below and passing imperceptibly into the dilated summit of the secondary stem. Peduncles congested in the axil of the leaf, clothed with several infundibuliform bracts, with the 4-flowered raceme about 1 cm. long, stout, sheathed at base by an ample spathaceous bract. Pedicel with the ovary 2.5–3 mm. long, stout, subtended by infundibuliform bracts. Lateral sepals at first coherent nearly to the tip, becoming free to the base, 6 mm. long, 2 mm. wide, oblong-lanceolate, acute, very fleshy, traversed longitudinally — along the middle of the outer surface — by a minutely scabridulous keel, margin obscurely glandulose. Dorsal sepal 6.5 mm. long, 2.5 mm. wide, oblong, subacute, very fleshy, minutely glandulose on the margin and outer surface, carinate. Petals 3 mm. long, 1 mm. wide, oblong, terminating in a slender acumen, 3-nerved, the margin of the upper half minutely and irregularly denticulate. Labellum very fleshy, 4 mm. long, 1.5 mm. wide above the middle, spatulate, with a triangular acute lobe on each side 1.5 mm. above the base, margin of the upper half conspicuously dentate, the lower teeth larger than the upper ones and curved sharply forward; lobules 1 mm. long. Disc smooth, 3-nerved, with a short keel on each lateral nerve near the middle. Column 4 mm. long, produced into an abbreviated foot at base, apex minutely and unequally denticulate or tridentate.

This species is very closely allied to *Pleurothallis sicaria* Lindl., a native of Trinidad. At first glance I mistook the

Panama plant for that species. In proposing *P. alpina* I do so with the realization that it differs from *P. sicaria* in minor details only, and may prove to be nothing more than a geographical variety. The labellum is obtuse, not acute as in *P. sicaria*, with the upper two-thirds spatulate rather than lanceolate. Lindley referred material from widely separated localities to *P. sicaria*, including *P. tripteris* Reichb. f. — a native of Venezuela—and on the same sheet with what I take to be the type of his species he mounted specimens of *P. pantasmi* Reichb. f. which had been obtained by Oersted in Nicaragua. His analytical drawings are from the Loddiges specimen originally sent from Trinidad. [Fig. 3.]

PANAMA, Province of Chiriqui, "Caramillia," C. W. Powell 282, collected in 1923. Grows in sunny locations; found on decayed tree trunks. Flowers in March. Sepals and petals olive-green on outer side, striped with dark purple-brown on the inner side. Lip purple. The stems are triangular with a groove between each angle. 4500 feet altitude. (TYPE in Herb. Ames No. 25025.)

Pleurothallis praegrans Ames sp. nov. Caules secundarii elongati, verisimiliter caespitosi, vagina ampla prope medium vestiti. Folium permagnum, orbiculariovatum, acuminatum, acutum, in sicco vix concavum, basi cordatum. Pedunculi fasciculati, plus minusve septem, ex axilla folii orientes, vagina complanata spathacea subtenti, apicem folii vix aequantes. Racemi multiflori. Pedicellus cum ovario gracilis, elongatus, bracteam racemi multo excedens. Flores mediocres, sepalis minute purpureo-maculatis. Bracteae inflorescentiae diaphanae, infundibuliformes. Sepala lateralibus usque ad apicem cohaerentibus, laminam valde concavam semi-ovatum formantibus. Sepalum dorsale concaviusculum, oblongo-ovatum, trinervium, apice acutum. Petala spathulata, e medio usque ad apicem obtusum incrassata, trinervia. Labellum circuitu transverse et anguste ellipticum, in positu naturali triangulari-ovatum a latere visum, intus utrinque callosum, callis obliquis. Columna abbreviata. Pollinia duo.

Secondary stems probably caespitose, with a large sheath near the middle, up to 83 cm. long, exceeding 6 mm. in diameter, when dry longitudinally sulcate, monophyllous. Sheath 10.5 cm. long, dilated, acute, scarious. Leaf 31.5 cm. long, 20.5 cm. wide below the middle, orbicular-ovate, acuminate, acute, cordate at the base, nervose, subcoriaceous when dry. Peduncles fasciculate, about seven, emerging from a complanate spathaceous bract near the axil of the leaf, with the raceme up to 21 cm. long, flexuose. Bracts of the raceme subinfundibuliform, translucent, about 2.5 mm. long, much shorter than the pedicel, about 1 mm. wide at the mouth. Pedicel with the ovary about 7 mm. long, very slender, ascending. Flowers whitish in dried specimens, dotted with dark purple. Lateral sepals 3.5 mm. long, united to the apex, forming a deeply concave lamina which is suborbicular when spread out. Dorsal sepal 2.5–3 mm. long, 1 mm. or more wide, oblong-ovate, acute, 3-nerved, the lateral nerves closed. Petals nearly 2 mm. long, hardly 1 mm. wide, spatulate, 3-nerved, much thickened above the middle. Labellum 1 mm. long, 3 mm. wide, narrowly transverse-elliptical when spread out, apiculate, sessile; when in natural position it is conduplicate and is semi-elliptical or triangular-ovate when seen from the side. Disc with a fleshy, obliquely situated, protuberant callus on each side. Column 1 mm. long, fleshy. Pollinia two, elongated, pyriform.

Pleurothallis praegranda is one of the largest species of the genus known to occur in the Central American flora. It belongs to the same alliance as *P. galeata* Lindl., from which it differs conspicuously in having thickened, spatulate petals and a different labellum.

PANAMA, Cana and vicinity. *R. S. Williams* 973, April 17 to June 8, 1908. On trees. 6000 feet altitude. (TYPE in N. Y. Bot. Gard.)

***Pleurothallis scandens* Ames sp. nov.** Caules primarii valde elongati, scandentes, vaginis minute verruculosi arete appressis vestiti; caules secundarii ad nodos caulium primariorum plus minusve tres, graciles, infra medium vaginis hispidulis arete appressis vestiti, superne vaginis



similibus retrorso-hispidulis obtekti, monophylli, basi radicales. Folia vix coriacea, anguste linearia, utrinque angustata, apice minute tridenticulata. Flores ex axillis foliorum orientes, bracteis spathaceis rufis glandulosis subtendentibus. Sepala lateralia usque ad medium plus minusve cohaerentia, elliptico-oblonga, trinervia, acuta vel subobtusa, extus glandulosa. Sepalum dorsale lanceolatum, acutum, trinervium. Petala triangularia, subacuta, trinervia, margine obscure et sparse glandulosa, apice incrassata. Labellum carnosum, subpanduratum, obtusum, glandulosum, per medium bicarinatum. Columna in pedem elongatum producta, usque ad apicem dilatata; clinandrium post antheram sparse et breviter laciniatum vel breviter excisum. Pollinia duo.

A scandent herb with the primary stems up to 30 cm. long, terminated at the growing point by a grass-like leaf 7-8 cm. long and bearing — at intervals of 10-18 cm. — fascicles of three or four secondary stems. Sheaths of the primary stem closely appressed, about 1 mm. in diameter, rusty-red when dry, the younger sheaths densely retrorse-hispidulous, becoming minutely verruculose as they mature. Secondary stems monophyllous, proliferous, 2-6 cm. long, slender, concealed by about four cylindrical closely appressed sheaths of which the lower two are provided with retrorse bristles; uppermost sheath dilated toward the apex, the expanded portion clasping the base of the leaf. Leaf 5-7 cm. long, 3-4 mm. wide, linear, gramineous when dry, minutely tridenticulate at the tip, narrowed and conduplicate at the base. Flowers with abbreviated peduncles clustered near the axil of the leaf, subtended by dilated rufous spathaceous glandular bracts. Pedicels 2 mm. long. Ovary 1.5 mm. long. Lateral sepals united to about the middle, 4 mm. long, 1 mm. wide above the middle, elliptic-oblong, 3-nerved, forming a concave base. Dorsal sepal about 5 mm. long, up to 2 mm. wide, lanceolate, acute, 3-nerved, each lateral nerve branched. Petals 5 mm. long, 1 mm. wide near the base, long-triangular, thickened near the apex, subacute, 3-nerved, with the margin obscurely, sparsely and irregularly glandulose. Labellum 1.5 mm. long,

fleshy, panduriform, obtuse, glandulose. Disc conspicuously bicarinate, with the keels extending nearly to the apex of the labellum. Column including the foot 3 mm. long, dilated upward, with a tooth on each side near the summit; clinandrium behind the anther sparsely and shortly lacinate or bifid. Pollinia two.

A very distinct species without any close allies in Central America. [Fig. 4.]

COSTA RICA, Cartago, La Estrella, C. H. Lankester & Alfredo Sancho 401. A delightful scandent species occurring in forest-ridges. (TYPE in Herb. Ames No. 24726.)

Lepanthes eximia Ames sp. nov. Herba pusilla, epiphytica, inconspicue hispidula. Caules caespitosi, usque ad quinquevaginati, erecti vel ascendentes, graciles, monophylli. Vaginae orae acuminato, elongatae, caules obtegentes, arcte appressae, nervis maculatis. Folium ellipticum, marginatum, bidenticulatum apiculo interjecto. Pedunculi singuli vel fasciculati. Racemi pauciflori. Sepala lateraliter vix usque ad medium cohaerentia, lanceolata, subacuta, margine glandulosa, uninervia nervo carinato. Sepalum dorsale triangulare, acutum, margine sparse glandulosum, trinervium nervo medio carinato glanduloso. Petala linearia, margine anteriore protuberanti. Labellum subquadratum vel oblongum, antice profunde bilobatum; lobis rotundato-obtusis, porrectis. Discus glaber. Columna brevis.

Epiphytic herb 2.5–3.5 cm. high. Secondary stems 1–2.5 cm. long, caespitose, sheathed, unifoliate. Sheaths about five, closely appressed, muriculate on the longitudinal nerves, expanded abruptly into an ovate-lanceolate acuminate tip which is marginate and muriculate on the margin. Leaf elliptical, up to 1 cm. long, 5 mm. wide, coriaceous, distinctly marginate, abruptly contracted at base into an abbreviated petiole, tridenticulate at the apex, the middle tooth an apiculate continuation of the mid-nerve. Peduncles few or solitary in the axil of the leaf, with the few-flowered raceme about 1 cm. long, slender. Flowers minute, solitary or as many as three in a loose raceme. Bracts of the

inflorescence infundibuliform, sparsely glandular. Pedicel with the ovary about 2 mm. long. Ovary conspicuously winged longitudinally. Lateral sepals united almost to middle or for one-third of their length, 2.5 mm. long, about 1 mm. wide near the base, lanceolate, subacute, glandular on the margin, 1-nerved through the middle, the nerve prominent. Dorsal sepal united with the lateral sepals, 2.5 mm. long, up to 2 mm. wide, triangular or triangular-ovate, acute, glandular-ciliate on the margin, 3-nerved, the middle nerve lightly carinate and glandular. Petals 1 mm. long, equaling the column and parallel with it, linear above the base, the margin protuberant on the anterior basal portion. Labellum 1.5 mm. long, scarcely 1 mm. wide, subquadrate, bilobed or bifid at the apex; the lobes or divisions obtuse, rounded and correct. Disc ecallose. Column short, without a distinct foot.

Without close allies in the Central American flora, but habitually similar to *Lepanthes tipulifera* Reichb. f. The floral structure indicates transitional tendencies toward *Pleurothallis*.

COSTA RICA, Cartago, Estrella, C. H. Lankester & Alfredo Sancho 437 (TYPE in Herb. Ames No. 24409): Hills south of Cartago, C. H. Lankester K334 (Herb. Kew.).

***Lepanthes rostrata* Ames sp. nov.** Radices fibratae. Caules secundarii caespitosi, ascendentes, vaginis muriculatis vestiti, monophylli. Vaginae elongatae, apice in laminam marginatam hispidulam expansae. Folium coriaceum, ellipticum, prope apicem abrupte contractum, terminationem rostriformem formans, basi in petiolum brevem eonduplicatum angustatum. Pedunculus folium excedens, filiformis, in racemum pauciflorum terminans. Rachis raeei nonnihil flexuosa. Flores rubrocinerei, pellucidi. Sepala lateralibus usque ad medium cohaerentibus, laminam lanceolatam bifidam formantibus, eglandulosa, valde membranacea, apice breviter caudata, margine interiore prope apicem partis liberae protuberanti. Sepalum dorsale ovato-lanceolatum, longe acuminatum, in caudam productum, valde concavum. Petala multo latiora quam longiora, transverse bilobata; lobis valde inaequalibus, oblongis, subobtusis.

Labellum trilobatum; lobis lateralibus angustatis, post columnam extendentibus; lobo medio gracili, ciliato. Columna brevis, superne dilatata.

Epiphytic, caespitose herb. Roots fibrous, smooth. Secondary stems 2.5–3.5 cm. long, slender, concealed by elongated sheaths, monophyllous. Sheaths about six, 6 mm. long, sparsely hispidulous, with the bristles elongated, dilated at the apex into an ovate marginate hispidulous-margined lamina. Leaf 1.5–2.4 cm. long, up to 8.5 mm. wide, coriaceous, elliptical, abruptly contracted near the end, forming a rostrate tip which is tridentate at the apex. Peduncle about 2.8 cm. long, about twice longer than the leaf, terminating in a short loosely few-flowered somewhat flexuose raceme. Bracts of the raceme tubular, smooth. Ovary conspicuously 6-winged. Lateral sepals 1.6 cm. long, forming a lanceolate bifid 6-nerved lamina which is about 6 mm. wide at the base; free portion of each sepal 8 mm. long, 2 mm. wide at base, oblong, the interior margin — below the apex — protuberant, apex itself shortly caudate, the abbreviated tail about 1 mm. long. Dorsal sepal 1.3 cm. long, about 4 mm. wide, ovate-lanceolate, strongly concave, prolonged into a slender caudate tip. Petals transversely linear-oblong, apiculate, about 5 mm. wide, scarcely 1 mm. long, appressed to the sides of the column, the posterior portion longer and broader than the anterior. Labellum trilobed; lateral lobes 2 mm. long, about .5 mm. wide, unguiculate from about the middle, narrowly elliptical, the basal portion obliquely spreading and prolonged behind the column, the anterior portion inclined obliquely inward in front of the column; middle lobe an inconspicuous filiform densely glandulose appendage, thickened at the tip. Column 2 mm. long, dilated upward.

It differs from *Lepanthes Chameleon* Ames in having eciliate sepals. *L. horrida* Reichb. f. is a close ally of *L. rostrata*, but differs conspicuously in having all of the sepals caudate, a dissimilar labellum and hispidulous petals.

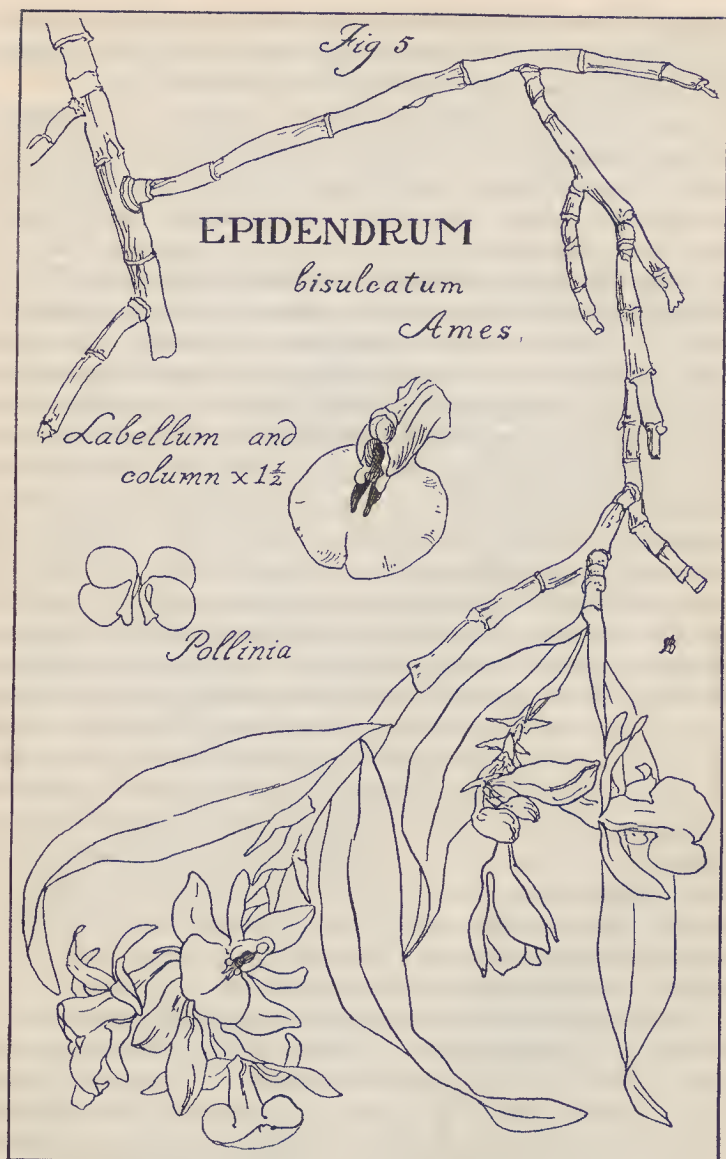
COSTA RICA, Cascajal, C. H. Lankester 59. Flowers large on long peduncles, semi-transparent, stained with red. 5500 feet altitude. (TYPE in Herb. Kew.)

Epidendrum bicameratum Reichb. f. in Gard. Chron. (1871) 1194.

Epidendrum squalidum Lindl. Fol. Orch. Epid. (1853) 8, non La Llave & Lex. *Epidendrum Karwinskii* Reichb. f. in Gard. Chron. (1869) 710, non Reichb. f. in Bonpl. 4 (1856) 327. *Encyclium squalidum* Lindl. apud Stein Orchideenb. (1892) 224, in synonym.

The type specimen was collected by Karwinsky in Mexico and given to Lindley by Bateman. It consists of an inflorescence. Lindley confused the species with *Epidendrum squalidum* La Llave & Lcx. Reichenbach described it as a new species under the name *E. Karwinskii*, unmindful of an earlier publication in which he had given the name to quite another species. In Reichenbach's Herbarium there is a specimen from Galeotti (No. 5313) which represents *E. bicameratum*. The specimen resembles Lindley's. It also resembles material in the Kew Herbarium which Rolfe identified as *E. bicameratum*. This very interesting and extremely rare species was omitted without comment from Schlechter's Kritische Aufzählung der bisher aus Zentral-Amerika bekanntgewordenen Orchidaceen.

Epidendrum bisulcatum Ames sp. nov. Herba epiphytica, valde ramosa, ramis plus minusve elongatis vel abbreviatis, vaginis mox deciduis obtectis. Folia duo (vel tria?), approximata, oblonga, utrinque attenuata, acuta, in petiolum conduplicatum valde abbreviatum a latere compressum contracta, racemo paucifloro vix longiora. Pedunculus valde bialatus, erectus. Racemus abbreviatus, plus minusve septemflorus. Bracteae flores subtendentes ascendentes, rigidae, triangulares, acutae, ovario pedicellato multo breviores. Sepala lateralia patentia, late oblonga, abrupte et inaequaliter acuta, carnosa, in vivo olivaceo-viridia. Sepalum dorsale erectum, incurvatum vel supra medium recurvatum, oblongum, subobtusum, basi leviter angustatum. Petala valde reflexa, lineari-spathulata, acuta vel obtusa, carnosa, olivaceo-viridia. Labellum suborbiculare, valde incrassatum, simplex, apice breviter retusum, prope basim disci bicallosum, callis papilliformibus in-



structum, ante callos breviter bisulcatum. Columna carnosae, labello adhaerens. Cl. Powell, qui plantam vivam examinavit, addit, quae supra de coloribus dicta sunt.

A much-branched epiphytic herb with two, or perhaps sometimes three, leaves at the summit of each flower-bearing branch. Roots coarse, spreading, 3–4 mm. in diameter, longitudinally sulcate when dry. Primary stem rigid, about 3 mm. thick, smooth, with the nodes 1.5–2 cm. apart, about 7 cm. long to the first branch, leaf-bearing branches 3–3.5 cm. long, clothed with whitish elongated tubular sheaths which are more or less dilated at the mouth, 2-leaved. Leaves subcoriaceous, approximate, 4–5.5 cm. long, up to 1.2 cm. wide, oblong, tapering from above the middle to an acute tip, at base narrowed and abruptly contracted into a short conduplicate petiole. Peduncle with the rachis of the abbreviated raceme up to 3.3 cm. long, bialate, with a large triangular bract below the raceme, complanate. Raceme up to 1.2 cm. long, bearing seven or more fleshy olive-green flowers. Bracts of the raceme 3–6 mm. long, rigid, concave, triangular, acute, obliquely ascending, shorter than the pedicellate ovary. Pedicel with the ovary smooth, about 1 cm. long. Lateral sepals up to 1.5 cm. long, 6.5 mm. wide, oblong, acute, asymmetrical. Dorsal sepal 12 mm. long, 6 mm. wide, oblong, acute. Petals 11–12 mm. long, 2.5 mm. wide above the middle, linear-spatulate, acute or obtuse. Labellum adherent to the column, expanded above into a suborbicular retuse lamina, including the adherent base 1.5 cm. long; lamina 9 mm. long, 11–12 mm. wide, strongly convex. Disc smooth, with two papilliform calli at base in front of the tip of the column, shortly bisulcate in front of the calli. Column fleshy, 7 mm. long.

The nearest allies of this species are *Epidendrum Viejii* Reichb. f., *E. propinquum* A. Rieh. & Gal., *E. ledifolium* A. Rieh. & Gal. and *E. tetraceros* Reichb. f. From *E. Viejii*, which is more similar to it than any of the other species named, it is distinguished by its much larger flowers, erect, not decurved, peduncles and by the different calli on the disc of the labellum. It belongs to that section of *Euepidendrum* which lacks large spathaceous bracts subtending the pe-

duncle or pedicels, and is characterized in part by a more or less simple labellum and much-branched stems. [Fig. 5.]

PANAMA, Province of Chiriqui, Palo-alto Hill, C. W. Powell 280, February to March 1923. Grows in medium sunny places, rare. Sepals and petals olive-green, labellum green with a purple sheen. 6000 feet altitude. (TYPE in Herb. Ames No. 25006.)

Epidendrum cobanense Ames & Schltr. *sp. nov.*
Herba epiphytica. Caules caespitiosi, erecti vel ascendentes, vaginati, paucifolii. Vaginae foliorum usque ad ostium dilatatae, transverse rugosae, rigidae. Folia teretia ut videtur, carnosa, acuta, oblique ascendente, disticha, inter se satis distantia, rigida, in sicco longitudinaliter rugosa. Inflorescentia ex axilla folii superioris oriens. Bractae infra pedunculum duae, spathaceae, imbricatae, in sicco scariosae, pedicellum cum ovario excedentes, valde complanatae. Pedicellus cum ovario in sicco longitudinaliter plurisulcatus. Sepala lateraliter valde carnosa, rigida, ligulata, acuta, margine nonnihil revoluta. Sepalum dorsale simile. Petala valde carnosa, anguste oblonga, apice hamata, supra medium triquetra. Labellum trilobatum, supra medium valde deflexum; lobis lateralibus erectis, columnae appressis, subcarnosis, antice rotundatis, quam lobo medio multo brevioribus; lobo medio valde incrassato, subtereti, apice subacuto vel obtuso. Discus callosus. Columna carnosa, abbreviata, semilibera, apice integra.

Epiphytic herb with stems 10–30 cm. high, characterized by obliquely ascending distichous terete leaves and by fleshy flowers borne singly at the summit of each stem. Stems caespitose or crowded, rising from a dense mass of fibrous roots, simple, concealed by the sheathing bases of the leaves. Sheaths 1–2.5 cm. long, rigid, dilated upward to a wide opening, 5 mm. wide at the summit, transversely wrinkled. Leaves six to eight, jointed to the sheaths, 3–7 cm. long, apparently terete, 2–3 mm. in diameter in dried specimens, obliquely ascending, somewhat curved, the uppermost leaf subtending the spathaceous bracts of the inflorescence. Flower solitary. Pedicellate ovary about

1.6 cm. long, entirely concealed by two ample spathe-like scarious imbricating bracts which are sessile in the axil of the uppermost leaf. Lateral sepals 1 cm. long, about 3 mm. wide, very fleshy, ligulate-oblong, margin more or less revolute, apex acute. Dorsal sepal of similar texture, ligulate, subacute. Petals about 1 cm. long, 2.5 mm. wide, narrowly oblong, sharply reflexed at the tip, apical portion triquetrously thickened, acute. Labellum about 1 cm. long, distinctly 3-lobed; lateral lobes rounded in front, erect, closely appressed to the column, much less thickened than the middle lobe, about twice longer than the column; middle lobe sharply deflexed or decurved, 6 mm. long, about 1.5 mm. wide, subterete or obscurely quadrangular, acute, rugose when dry. Disc callose beneath the column. Column about 4 mm. long, fleshy, with the clinandrium entire.

In general aspect this species suggests *Epidendrum teretifolium* Sw., from which it differs conspicuously in the structure of the labellum. [Fig. 1.]

GUATEMALA, Department of Alta Verapaz, Cobán, *H. v. Tuerckheim II* 1612, May 1908. 1350 meters altitude (Type): Samác, *Harry Johnson* 321, May 1, 1920. Flower brown, succulent. 4000 feet altitude. (TYPE in U. S. Nat. Herb. No. 795714. FRAGMENT OF TYPE in Herb. Ames No. 23746. DUPLICATE TYPE in Herb. Schlechter.)

Epidendrum diurnum (Jacq.) Reichb. f. Beitr. Orch. Centr. Am. (1866) 81, sub *E. ramonense* Reichb. f.; Cogn. in Urb. Symb. Antill. 6 (1910) 497.

Limodorum diurnum Jacq. Icon. Pl. Rar. (1786-93) t. 603. *Cymbidium diurnum* Sw. in Schrad. Journ. Bot. 1 (1799) 221. *Epidendrum ochranthum* A. Rich. in Sagra Hist. Nat. Cub. 11 (1850) 237, t. 78 bis. *Epidendrum vires* Lindl. in Paxt. Flow. Gard. 1 (1851) 152. *Epidendrum Wageri* Klotzsch in Allg. Gartenz. 19 (1851) 250. *Encyclia vires* Schltr. Orchideen (1914) 212. *Encyclia diurna* Schltr. in Fedde Repert. Beihefte 6 (1919) 75; Britton & Millsp. Bahama Fl. (1920) 92. *Encyclia Wageri* Schltr. in Fedde Repert. Beihefte 6 (1919) 75.

Epidendrum diurnum (Jacq.) Reichb. f. and *E. virens* Lindl. are sometimes regarded as distinct species. Lindley's specimens of *Epidendrum virens* resemble so closely the figure of *Limodorum diurnum* Jacq. that we are justified in agreeing with Cogniaux that they constitute a single species. Reichenbach in proposing the combination *Epidendrum diurnum* cited *E. virens* Lindl. as a synonym.

TROPICAL AMERICA, Mexico, Guatemala, West Indies and Venezuela.

***Epidendrum Kienastii* Reichb. f.** in Gard. Chron. ser. 3, 2 (1887) 126.

This rare Mexican species which is known to me only through the type specimen in Reichenbach's Herbarium and a specimen in the Kew Herbarium received from Kienast in 1898, presumably from the type plant cultivated in Zurich, is not included in Schlechter's *Kritische Aufzählung der bisher aus Zentral-Amerika bekanntgewordenen Orchidaeen*. It is a very distinct species, quite unlike any other Mexican *Epidendrum* that I have seen. The sepals and petals are about 2 cm. long, the former oblong and acute, the latter spatulate. The labellum is about 2 cm. long, somewhat less than 1 cm. wide across the large terminal lobe. The lateral lobes are smaller than the middle one and are spatulate in outline. On the disc between the lateral lobes there is a forcipate callus. The flowers are described as being rose-color with a white labellum.

MEXICO.

***Epidendrum laterale* Rolfe** in Orch. Rev. 20 (1912) 280, 319, nomen tantum; 28 (1920) 160.

In *Schedulae Orchidiana* 3 (1923) 19, I referred this species to synonymy under *E. Rousseauae* Schltr. It seemed to me that the only substantial difference between Rolfe's type specimen and the material of *E. Rousseauae* that I had been able to study was one of size, *E. laterale* having larger flowers and more robust vegetative parts. Rolfe described *E. laterale* as follows: "It bears tufts of cylindrical pseudo-

bulbs, two to three inches long, with a single oblong leaf, some three inches long by about one broad. The slender spikes are about half as long as the pseudobulbs, and are borne on a small lateral growth, as in *Cattleya Walkeriana*, which afterwards develops into a pseudobulb. The spikes are protected by one or two short basal sheaths, and the flowers are light green, and over an inch across, the lip being uppermost, three-lobed, and its stalk completely confluent with the column. The lateral sepals are slightly concave, and broader than the odd one, while the petals are narrowly linear-lanceolate. It is a very distinct and very interesting little plant."

Among specimens sent to me from Costa Rica by C. H. Lankester I have found excellent material of an *Epidendrum* which is clearly referable to *E. laterale* Rolfe. It has the large flowers of the type. I have compared this specimen with authentic material of *E. Rousseauae*, and have arrived at the conclusion that two distinct species are represented. It would seem that the difference in size between the flowers is simply a conspicuous manifestation of other differences. *Epidendrum Rousseauae* from the tip of the upper sepal to the tip of the labellum is about 1.9 cm. long. Measured similarly the flowers of *E. laterale* are 3–3.5 cm. long. Rolfe described the flowers of *E. laterale* as over one inch across. *E. Rousseauae* is slightly more than one-half inch across when the lateral sepals are spread out, while *E. laterale*, as represented by Lankester's specimen, is from one to one and one-eighth inches across. In the middle lobe of the labellum there is a conspicuous difference between the two species, this lobe in *E. laterale* being dilated upward from a cuneate base, while in *E. Rousseauae* it is only slightly dilated from an oblong base.

COSTA RICA, Las Cóncevas, C. H. Lankester & Alfredo Sancho 372, December 1922. Flowers pale viridine-yellow; Lankester 54, December 2, 1918. Flowers and bracts mar-tius-yellow (Ridgway). Rachis green. Pseudobulbs terete, monophyllous. Inflorescence radical, pendent. (TYPE in Herb. Kew., Lankester 192.)

***Epidendrum porphyreum* Lindl.** in Hook. Journ. Bot. 3 (1841) 86, tt. 7, 8.

On the evidence of a Bernoulli specimen preserved in the Kew Herbarium, the range of this Peruvian species was extended to Guatemala by Hemsley in *Biologia Centrali-Americana*. Schlechter, in his *Kritische Aufzählung der bisher aus Zentral-Amerika bekanntgewordenen Orchidaceen* (Bot. Centralbl. 36, Abt. 2 (1918) 466), admitted the species to his list without comment. The Bernoulli specimen is very different from *E. porphyreum*, and seems to be conspecific with *Epidendrum Clowesii* Batem. From available evidence it would seem that *E. porphyreum* is not a native of Central America.

***Eria Taylori* Ames sp. nov.** Herba epiphytica, pauciramosa, foliis prope apicem ramorum confertis. Caules rigidi ramis foliosis distantibus. Folia in sicco plus minusve chartacea, anguste lanceolata, nervosa, acuminata, acuta, plus minusve quattuor. Pedunculi ex axillis foliorum orientes, folia aequantes vel excedentes. Racemus multiflorus, arcuatus. Pedicelli cum ovario fusco-glandulosi. Bracteae glabrae. Sepala lateralia triangulari-ovata, subacuta, quinquenervia, membranacea, mentum obtusum formantia. Sepalum dorsale lanceolatum, subacutum, basi valde concavum. Petala elliptico-lanceolata, subacuta, trinervia, nervis lateralibus ramosis. Labellum ovatum, obtusum, margine prope medium labelli inaequaliter dentatum, ecallosum. Columna carnosa, sepalo dorsali plus minusve duplo brevior.

Roots fibrous, stiff, spreading. Stems 30 cm. or more long, sparingly branched, about 5 mm. in diameter near the base, concealed for the most part by elongated tubular sheaths which in dried specimens are rubeolous. Leaves up to 12 cm. long, 1-1.6 cm. wide below the middle, narrowly lanceolate, rounded at the base, tapering gradually from above the middle to an acute tip, chartaceous when dry, crowded on the upper part of the branches, usually four or five in number. Peduncles ascending from the axils of the leaves, densely and shortly glandular, with the raceme 12 cm.

or more long, with several ovate-lanceolate smooth somewhat spreading bracts. Racemes about 7 cm. long. Bracts of the raceme 5 mm. long, smooth or only sparsely glandular along the margin. Lateral sepals 7.5–8 mm. long, 3 mm. wide at the base, triangular-ovate, forming a conspicuous mentum which is 2.5 mm. long and obtuse. Dorsal sepal about 8 mm. long, lanceolate, subaeute, strongly concave at the base, more than twice longer than the column. Petals 7.5 mm. long, 2 mm. wide below the middle, elliptic-lanceolate from a broad base, subaeute, 3-nerved. Labellum 6 mm. long, about 4 mm. wide near the base, broadly ovate, obtuse, with the margin on each side — near the middle — coarsely and unequally dentate, 3-nerved, the lateral nerves much branched. Disc ecallose. Column fleshy, 3 mm. long, produced at the base into an elongated foot.

The nearest ally of this species is *Eria philippinensis* Ames, which has much larger flowers, different leaves and stouter stems which are provided with swollen sheaths. From *E. vagans* Ames it differs in habit. The structure of the labellum suggests *E. dagamensis* Ames, but from that species it is quite distinct in habit.

PHILIPPINES, Luzon, Laguna Province, Mount Maquiling, *Edward H. Taylor* 25, December 13, 1922. On trees in mossy forest. Flower lavender, the tips of the petals yellow. 1000 meters altitude. (TYPE in Herb. Ames No. 25857.)

Trigonidium Lankesteri Ames *sp. nov.* Rhizoma repens, validum. Pseudobulbi inter se satis distantes, apice quinquefoliati. Scapus e basi pseudobulbi oriens. Folia oblongo-lanceolata, in petiolum conduplicatum contraeta. Sepala infra medium conniventia, supra medium valde patentia, ligulata, acuta. Petala quam sepala multo minora, ligulata, apiculata. Labellum trilobatum, carnosum; lobis lateralibus erectis, porrectis, apice triangulari-acutis; lobo medio oblongo, obtuso. Columna carnosae.

Rhizome 20–35 cm. long between the pseudobulbs, 6 mm. in diameter, yellowish, with closely appressed cylindrical obtuse sheaths which are 2 cm. long. Pseudobulbs

8 cm. long, tapering upward from a broad base which is 3 cm. thick in greatest diameter, yellowish and deeply sulcate when dry, subtended by rigid imbricating sheaths. 5-leaved at the summit, the leaves imbricating at the base, distichous. Leaves 22.5-27 cm. long, 4 cm. or more wide, thinly coriaceous, oblong-lanceolate, acute, contracted at base into a conduplicate petiole which is about 5 cm. long. Flower solitary on a short scape which arises from the young rhizome at the base of the terminal pseudobulb. Scape completely concealed by imbricating sheaths, stout. Lateral sepals 5 cm. long, 1.6 cm. wide, oblong, abruptly rounded to the acute tip, sharply reflexed above the middle, connivent below the middle and with the dorsal sepal forming a tube. Dorsal sepal similar, but a little narrower. Petals 2.4 cm. long, about 8 mm. wide, broadly oblanceolate, apiculate, with a callus-thickening on the inside near the tip. Labellum 1.4 cm. long, 5 mm. wide near the apex, 3-lobed, oblanceolate in outline when spread out; lateral lobes erect, the free portion of each lobe 1.5 mm. long, triangular-acute (from tip of the lateral lobes to the base of the labellum 9 mm. long); middle lobe 6 mm. long, oblong-orbicular, obtuse, upper surface minutely glandular, under surface heavily verrucose along the middle. Disc with a median bilobed callus, minutely glandular. Column 1 cm. long, fleshy.

Trigonidium Lankesteri is readily distinguished among the Central American species of the genus by means of its exceptionally large flowers, elongated rhizome and 5-leaved pseudobulbs.

COSTA RICA, Las Cóncevas, in cultivation, *C. H. Lankester* 367 (Type) & 465, February 2, 1923. Sepals cinnamon or clay color (Ridgway), on the frontal portion, exteriorly, veined purplish, where forming tube olive ochre to light yellowish olive. Petals shining, veined chocolate spotted with purple, also a suffused patch of chocolate on inner upper angle of sepals. Labellum only just visible without spreading sepals and petals, ivory white, spotted beneath and above with deep chocolate. Flowers 4.2 cm. across from tip to tip of the lateral sepals, 3.9 cm. long from angle formed

by the reflexed sepals to summit of the ovary. (TYPE in Herb. Ames No. 24135.)

Notylia Lankesteri *Ames sp. nov.* Pseudobulbi mihi non visi. Folium coriaccum, oblongum, obtusum, nervo medio subtus prominenti, basi rotundatum. Pedunculus validus, infra racemum bracteis scariosis acuminatis vestitus, dependens. Racemus cylindricus, densiflorus, bracteis flores subtendentibus lineari-triangularibus scariosis ovarium pedicellatum excedentibus. Flores albidi, petalis aurantiaco-maculatis. Sepala lateralialia usque ad basim libera, vix patentia, elliptico-ovata, valde concava, acuta, apice incrassata, breviter et obscure apiculata. Sepalum dorsale simile. Petala elliptica, basi breviter et late unguiculata, leviter concaviuscula, intus prope basim aurantiaco-maculata. Labellum valde carnosum, ovato-lanceolatum, acutum, apice lateraliter compressum, margine plus minusve erecto, prope basim callo triangulari valde complanato erecto in medio disci ornatum. Callus antice in carinam prominentem productus. Columna generis.

Pseudobulbs not seen. Leaf with the abbreviated petiole 12.5 cm. long, 3 cm. wide, oblong, obtuse, with the median nerve prominent beneath, rounded at the base and rather abruptly contracted to form the conduplicate petiole, coriaceous, bilobed at the apex. Petiole about 1 cm. long. Peduncle pendent, about 2 mm. thick, clothed below the raceme with several elongated scarious acuminate bracts. Raceme 4 cm. or more long, about 1 cm. in diameter, cylindrical, densely many-flowered. Bracts of the raceme 4-5 mm. long, linear-acuminate, scarious, exceeding the pedicellate ovary. Flowers white with the petals finely spotted with orange, aromatic, fleshy. Lateral sepals free, 5 mm. long, 3 mm. wide near the middle, elliptic-ovate, acute, thickened near the tip, shortly apiculate, 3-nerved, fleshy, very strongly concave, hardly spreading, rather porrect beneath the labellum. Dorsal sepal similar, 5 mm. long, strongly concave, obscurely, if at all, apiculate. Petals 4.5 mm. long, 2.5 mm. wide near the middle, lightly concave, elliptical, obtuse from a broad abbreviated unguiculate base,

heavily and broadly thickened — on the outside — along the middle near the point of insertion, the lower half finely dotted with orange on the inside. Labellum 4 mm. long, 2.5 mm. wide below the middle, very fleshy, ovate-lanceolate, acute, with the tip laterally compressed, margins obliquely ascending. Disc traversed longitudinally by a prominent thickening which is decurrent from a large, laterally complanate, fleshy, triangular, erect callus which is situated in the middle near the base of the labellum. Column fleshy, about 3 mm. long.

In general aspect not unlike *Notylia albida* Klotzsch, but differing from it in the entirely free lateral sepals and fleshy flowers.

COSTA RICA, Rio Estella, C. H. Lankester & Alfredo Sancho 373. Common in open undergrowth near streams. Flowers aromatic, pungently spicy. (TYPE in Herb. Ames No. 24909.)

Ornithocephalus bicornis Lindl. in Benth. Bot. Voy. Sulphur (1846) 172.

Ornithocephalus lanuginosus Ames in Proc. Biol. Soc. Wash. 34 (1921) 152. *Ornithocephalus diceras* Schltr. in Fedde Repert. Beihefte 17 (1922) 87.

Lindley, with unpardonable brevity, described this species as follows: "foliis ensiformibus erectis racemo hirsuto longioribus, sepalis subrotundis apiculatis petalisque conformibus unguiculatis ciliatis, labelli carnosii bipartiti laciniis lanceolatis recurvis canaliculatis. — Panama." He omitted any reference to the canaliculate median appendage which is such a conspicuous part of the labellum. In his herbarium, however, he drew the labellum in detail and clearly showed this median appendage. Without the type specimen and Lindley's drawing it would be quite simple to exclude *O. bicornis* from contemplation in attempts to identify species of *Ornithocephalus*. From the synonymy given above it is evident that two species, which I now regard as inseparable from Lindley's *O. bicornis*, have been proposed recently. In proposing *O. diceras* Schlechter wrote: At first I believed that *O. bicornis* was before me,

since the presence of the two horns above the base of the labellum indicated this, but the linear lip-appendage disposed of this suspicion. (Is it not probable that in Lindley's type this process had become broken?)

In reducing *O. lanuginosus* and *O. diceras* to *O. bicornis* I have been influenced by structural resemblances which indicate close relationship. It is true that slight differences in the size of the flower are noticeable between *O. lanuginosus* and *O. diceras*, but these differences are accounted for, I believe, by growing conditions, and by the point of maturity to which the plants had attained when herbarium specimens were prepared. Schlechter describes smaller flowers than are present in my specimen of the type number of *O. lanuginosus*, but it is probable that his material of *O. diceras*, like mine, was taken from a plant in Mr. Powell's garden at Balboa that was just beginning to bloom. *O. lanuginosus* when collected by Killip was past floral prime.

PANAMA, *Dr. Sinclair*; Veragua, *Hinds*; Province of Panama, edge of forest along Panama-Pecora Road, near Tecumen River, *Elsworth P. Killip 3314*, December 30, 1917. On trees. 75 meters altitude; Hills east of Panama City, *C. W. Powell 174*. Grows generally in moss on upper sides of limbs. Flowers white and green. Flowers November to December. Sea level to 500 feet altitude.

Lockhartia Lankesteri *Ames sp. nov.* Caulis caespitosi, omnino foliosi. Folia disticha, imbricata, triangularia, superne vix vel non decrescentia. Inflorescentiae apicales vel paulo infra apicem caulium, pauciflorae, bracteis magnis scariosis instructae; rachis quam folia brevior. Bractee cordatae, late ovatae. Sepala lateralibus oblongo-elliptica, acuta, concaviuscula, valde membranacea, aurantiaca, apiculo infra apicem. Sepalum dorsale simile, valde concavo-cucullatum, trinervium. Petala ovato-elliptica, obtusa, trinervia, valde membranacea, aurantiaca. Labellum trilobatum; lobis lateralibus oblongo-linearibus, obtusis, divaricatis, quam lobo medio multo minoribus, membranaceis; lobo medio obscure quadrilobulato vel sub-

rhombeo, apice retuso, membranaceo. Discus callo permagno instructus. Callus antice minute trilobulatus, basi cristatus. Columna brevis.

Stems caespitose, 7-23 cm. or more long, erect, entirely concealed by fleshy imbricating distichous leaves which decrease in size imperceptibly above and below the middle, complanate, rather rigid. Leaves triangular, about 1.5 cm. long, 5 mm. wide at the base. Peduncles terminal or from the axils of the uppermost leaves, shorter than the leaves. Bracts of the inflorescence up to 4 mm. long, ovate-cordate, acute, scarious. Racemes abbreviated, few-flowered. Pedicel with the ovary about 6 mm. long, slender, smooth. Flowers orange-yellow. Lateral sepals 4 mm. long, hardly 3 mm. wide, strongly concave, oblong-elliptical, acute, with an apicule on the under side just beneath the tip. Dorsal sepal similar strongly concave or cucullate. Petals 4 mm. long, 2 mm. wide, ovate-elliptical, round-obtuse, 3-nerved. Labellum 3-lobed, 4-5 mm. long, 5 mm. wide below the tips of the lateral lobes; lateral lobes 2 mm. long, .75 mm. wide, linear-oblong, obtuse, divaricate, membranaceous; middle lobe up to 4 mm. long, about 3 mm. wide near the middle, obscurely lobulate on each side above the middle, deeply retuse at the tip where it is about 1.5 mm. wide. Disc smooth except for a cushion-like callus in front of the column. Callus compressed dorso-ventrally, slightly concave, obscurely and minutely 3-lobulate in front, with a crest of bristle-like appendages on the basal margin near the base of the column. Column dilated above the base, 4-lobed.

Closely allied to *Lockhartia micrantha* Reichb. f., from which it differs in the lateral lobes of the labellum and in lacking appendages on the disc of the labellum in front of the basal callus.

COSTA RICA, San Carlos, *C. H. Lankester* 448, March 30, 1923. (TYPE in Herb. Ames No. 25858.)

Campylocentrum hondurensis Ames *sp. nov.* Herba parvula, epiphytica, radicibus longe patentibus. Caules multo abbreviati. Folia disticha, approximata, oblongo-ligulata, coriacea, apice inaequaliter bilobulata. Pedunculi

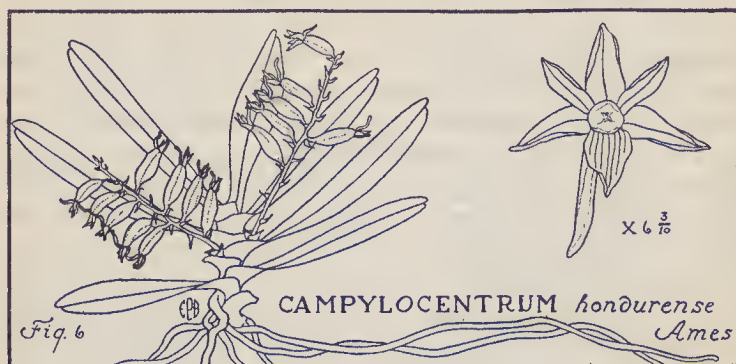
NEW OR NOTEWORTHY ORCHIDS

ex axillis vaginarum orientes, folia aequantes vel subaequantes, distichiflori, rachide glanduloso-scabridula. Flores albi, breviter pedicellati. Bractee inflorescentiae pedicellos excedentes, triangulares, concavae, acuminatae, acutae, rigidae. Sepala petalaeque conniventia. Sepala lateralia usque ad basim libera, longe triangularia, acuta, uninervia, extus leviter carinata per medium, membranacea, labello longiora. Sepalum dorsale triangulare, subacutum, uninervium. Petala lineari-oblonga, acuta, uninervia. Labellum triangulari-trulliforme, acutum, basi concavum in calcar leviter sigmoidicum productum. Calcar sepalis longius, teres, utrinque attenuatum, valde elongatum, vix scrotiforme, apice obtusum. Columna valde abbreviata. Anthera permagna. Capsula ellipsoidea, sexangularis, sparse glandulosa.

Roots fibrous, up to 15 cm. long, spreading, longitudinally sulcate. Stems 8 mm. long, complanate, concealed by the sheathing imbricating bases of the leaves, erect or ascending. Leaves about seven, distichous, up to 2.7 cm. long, 3.5–5 mm. wide, broadest above the middle, oblong, ligulate, articulated with a conduplicate base which is 2.5 mm. long, unequally bilobed at the tip, mid-vein prominent beneath. Peduncles with the raceme 1.4–2.7 cm. long, arising from the axil of the leaf-sheath. Raceme 1–2 cm. long. Bracts of the inflorescence 1.75 mm. long, exceeding the pedicels of the flowers, rigid, triangular, acute, concave. Flowers about ten, white, distichous, 3 mm. apart on the glandular-scabridulous rachis. Lateral sepals 2 mm. long, about 1 mm. wide at the base, triangular, acute, 1-nerved, carinate along the middle on the outer surface, connivent. Dorsal sepal 2 mm. long, triangular, subacute, 1-nerved. Petals 1.75 mm. long, linear-oblong, 1-nerved, acute, membranaceous, parallel with the upper sepal. Labellum hardly 2 mm. long, .75 mm. wide near the base, triangular-trulliform or lanceolate, acute, membranaceous, produced at base into a slender spur, ecallose. Spur 3 mm. long, terete, lightly sigmoid, attenuated at the ends, obtuse, more or less porrect. Column stout, abbreviated. Capsule 5 mm. long, ellipsoidal, 6-angled, sparsely glandulose.

NEW OR NOTEWORTHY ORCHIDS

A very distinct species without any near allies in the Central American flora. The elongated spur and abbreviated stems are characteristic. [Fig. 6.]



SPANISH HONDURAS, Lancetilla Farm near Tela, Ames II 210, March 16, 1923. On small tree overhanging the Tela River. 250 feet altitude. (TYPE in Herb. Ames No. 25261.)

Sarcochilus zamboangensis Ames sp. nov. Caules validi, abbreviati, e radicibus fibratis orientes. Folia ligulata, congesta, coriacea, oblique ascendunt, apice inaequaliter bilobulata. Pedunculus elongatus, infra racemum gracilis. Racemus multiflorus, incrassatus. Pedicelli abbreviati. Sepala lateralia inaequaliter elliptica, obtusa. Sepalum dorsale oblongo-ellipticum, subacutum, valde concavum. Petala oblonga vel spathulata, obtusa. Labellum trilobatum, in calcar curvatum productum; lobis lateralibus subquadratis, rotundato-obtusis, erectis; lobo medio transverse oblongo-elliptico, infra apicem breviter carinato, calcar infra apicem tubulato, apice valde inflato. Columna arcuata, antice concaviuscula.

Stems 3-4 cm. long, stout, rigid, concealed by the bases of the distichous leaves. Leaves 20-30 cm. long, up to 4.5 cm. wide, ligulate, coriaceous, obliquely ascending, unequally bilobed at the obtuse apex. Peduncle with the raceme 10-18 cm. or more long, slender below the raceme, about

NEW OR NOTEWORTHY ORCHIDS

1 mm. thick, with several closely appressed bracts. Rachis thickened. Bracts of the raceme rigid, about 1 mm. long, quaquaversal, thickened, somewhat triangular when seen from the side, much shorter than the pedicels. Pedicel with the ovary about 7 mm. long. Flowers purplish, opening in succession, rather fleshy. Lateral sepals 6.5–7 mm. long, 4 mm. wide above the middle, asymmetrically elliptical or obovate, obtuse, somewhat concave. Dorsal sepal 7 mm. long, 2.5 mm. wide, oblong-elliptical, subacute, strongly concave or subcucullate. Petals about 6 mm. long, 2 mm. wide, broadened upward, subspatulate or oblong, obtuse. Labellum 3-lobed, calcarate; the lateral lobes 2 mm. long on the posterior margin, 1 mm. long on the anterior margin, 1 mm. wide, subquadrate, truncate-obtuse, erect; middle lobe transversely oblong-elliptical when spread out, 1 mm. long, 2 mm. wide, conduplicate, with a thickened abbreviated keel beneath; spur 8 mm. long, sharply curved, slightly dilated and infundibuliform at the throat, tubular below, the apical portion inflated, dorso-ventrally compressed, the dilated portion 2 mm. in diameter (measured transversely). Column 4 mm. long, arcuate, produced at base into a foot which is 1.25 mm. long.

In habit similar to *Sarcochilus pallidus* Reichb. f., from which it is in part distinguished by the much smaller flowers.

PHILIPPINES, Mindanao, Zamboanga Province, Flecha Point, *E. D. Merrill 11640*, September 30, 1922. On trees in primary forest. Flowers pinkish. About 10 meters altitude. (TYPE in Philip. Bur. Sci. DUPLICATE TYPE in Herb. Ames No. 25860.)

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